

SPECIFICATION

of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

~

(project name)

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(project address)

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(owners name)

Job Number: ~

Date: ~

4710M MAMMOTH™ THERMAL & ACOUSTIC INSULATION

1. GENERAL

If you have pre-customised this work section using the "questions and answers" provided as part of the downloading process, it may be necessary to amend some clauses to suit the final project-specific version.

The section must still be checked and customised to suit the project being specified, by removing any other irrelevant details and adding project-specific details and selections.

This section relates to **Mammoth™ Insulation** installed, laid, hung or fitted as thermal and acoustic insulation.

It includes;

- Mammoth™ Wall Insulation
- Mammoth™ Underfloor Insulation
- Mammoth™ Ceiling Insulation
- Mammoth™ Skillion Roof Insulation
- Mammoth™ NOVAhush Acoustic Insulation

NZS 4218 and NZS 4243.1 provide a schedule, a calculation and a modelling method for determining insulation to meet NZBC H1. Ensure SELECTIONS reflect the project requirements.

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for underlays, foils and DPC.

Include cross references to other sections where these contain related work.

Refer to roofing sections for roofing underlays.

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

STC	sound transmission class rating
IIC	impact insulation class
Rw	Weighted Sound Reduction Index is sometimes used; the Rw numbers will be very similar to the equivalent STC numbers.

STC is the amount of airborne sound transmission loss through a complete construction like a wall or floor, measured in decibels (dB).

IIC is the amount of impact sound transmission loss through a complete construction like a floor, measured in decibels (dB)

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBCG6/VM1	Airborne and impact sound
NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
NZS 4218:2004	Energy efficiency - Small building envelope
NZS 4220	Code of practice for energy conservation in non-residential buildings
NZS 4243.1	Energy efficiency - Large buildings - Building thermal envelope
NZS 4246	Energy efficiency - Installing insulation in residential buildings
AS/NZS 4389	Safety Mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 4859.1	Materials for the thermal insulation of buildings - General criteria and technical provisions
AS/NZS 60598.2.2	Luminaires- Particular Requirements - Recessed luminaires
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
ASTM C518	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

NZS 4218:2004 Energy Efficiency - Small Building Envelope, is recognised by NZBC, NZS 4218:2009 Thermal Insulation - Housing and Small Buildings, has not at the time of writing been recognised by NZBC. Consult with the BCA as to their requirements.

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents. The following are related documents and if referred to in the work section need to be added to the list of DOCUMENTS.

NZBC C/AS1 - AS2 Protection from fire
NZBC H1/VM1 Energy efficiency
NZS 3602 Timber and wood based products for use in building
NZS 3604 Timber-framed buildings
NZS 4214 Methods of determining the total thermal resistance of parts of buildings
SNZ/PAS 4244 Insulation of lightweight-framed and solid-timber houses
BRANZ BU 426 Achieving acoustic separation
BRANZ BU 427 Improving thermal insulation
BRANZ BU 429 Calculating R-values for timber framed buildings
BRANZ BU 460 Internal moisture control
BRANZ BU 461 Practical sound control
BRANZ BU 539 Recessed downlights
BRANZ publication House insulation guide

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Mammoth™ Underfloor Data Sheet
Mammoth™ Skillion Roof Data Sheet
Mammoth™ Ceilings Data Sheet
Mammoth™ Walls Data Sheet
Mammoth™ Friction Fitted Airlay Data Sheet
Mammoth™ NOVAhush Acoustic Data Sheet

[BRANZ Appraisal 802](#) - Mammoth™ Underfloor Insulation

[BRANZ Appraisal 797](#) - Mammoth™ Insulation

Living Building Challenge: Declare Program - Red List Free Declaration Status for Mammoth insulation.

Manufacturer/supplier contact details

Company: **InsulPro Manufacturing Limited**

Web: www.mammoth.co.nz

Email: info@mammoth.co.nz

Telephone: 0800 MAMMOTH (626 668)

Facsimile: 09 273 2309

It is important to ensure that all personnel on-site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Mammoth is manufactured by InsulPro Manufacturing Ltd – a carboNZero certified organisation.

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years: For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify or expand the clause to suit project or manufacturer/supplier requirements, options include:

- *Change the standard form to be used (check with the manufacturer/supplier, use the general section 1237WA WARRANTY AGREEMENT if required)*
- *Commence the warranty from the date of purchase (check with the manufacturer/supplier)*

1.6 WARRANTY - APPROVED INSTALLER/APPLICATOR

Provide an approved installer/applicator warranty

5 years: For execution

- Provide this warranty on the approved installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify or expand the clause to suit project or installer/applicator requirements, options include:

- *Change the standard form to be used (check with the installer/applicator, use the general section 1237WA WARRANTY AGREEMENT if required)*
- *Commence the warranty from the date of installation (check with the installer/applicator)*

Requirements

1.7 QUALIFICATIONS
Work to be carried out by tradesmen experienced, competent and familiar with the Mammoth™ insulation materials and techniques specified.

1.8 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Mammoth™ Insulation, associated products, components or accessories.

Performance - acoustic

Use site performance testing only where this is specifically required.

1.9 SOUND RATING REQUIREMENTS
Provide sound rated wall, floor and ceiling systems. Refer SELECTIONS.

1.10 SOUND CONTROL SITE TEST
Site test each sound rated element in accordance with [NZBC G6/VM1](#) to ensure that the specified sound transmission loss has been achieved using a nominated acoustic consultant. Carry out sound tests wall by wall to ISO 140, part 4 to certify compliance. Rectify any element that does not meet the specified STC/IIC figure.

2. PRODUCTS

Materials - thermal

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5. Mammoth™ Polyester Insulation meets this requirement.

2.1 MAMMOTH™ AIRLAY SECTIONS - FRICTION FIT
Mammoth™ airlay sections to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#), and [NZS 4220](#). 100% white, non woven polyester fibres thermally bonded to produce self supporting and friction fitted insulation sections. Machine slit to the required width and cut to length. Refer to SELECTIONS for location, type, R Value and thickness.
For walls and underfloor and skillion roof insulation. Underfloor sections come in medium density or high density airly insulation sections.

2.2 MAMMOTH™ SECTIONS
Mammoth™ sections to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#) and [NZS 4220](#). 100% white semi-rigid polyester fibres thermally bonded to produce insulation pads. Refer to SELECTIONS for location, type, R-Value and thickness.
For wall insulation.

2.3 MAMMOTH™ BLANKETS
Mammoth™ blanket rolls to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#) and [NZS 4220](#). 100% white non woven lofted polyester fibres thermally bonded to produce insulation blankets. Refer to SELECTIONS for location, type, R-Value and thickness.
For ceiling, wall and underfloor insulation.

Materials - acoustic

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5. Mammoth™ Polyester Insulation meets this requirement.

- 2.4 MAMMOTH™ NOVAHUSH ACOUSTIC BLANKET
Mammoth™ NOVAhush Acoustic Blanket, 100% white non-woven lofted polyester fibres thermally bonded to produce acoustic blankets. Refer to SELECTIONS for STC / Rw.
Mammoth™ NOVAhush Acoustic Blanket used in a wide range of acoustic applications in housing and commercial buildings.
- 2.5 MAMMOTH™ NOVAHUSH ACOUSTIC SECTIONS
Mammoth™ NOVAhush Acoustic Section, friction fitted airway insulation, 100%, thermally bonded polyester fibre material. Supplied as sections. Refer to SELECTIONS for STC / Rw.
Mammoth™ NOVAhush Acoustic Sections used in a wide range of acoustic applications in housing and commercial buildings.

Components

- 2.6 FASTENERS
Insulation anchors complete with retained washer. 25mm general purpose polyester webbing, 1500kg breaking strain.
- 2.7 TAPES
Proprietary plastic tape, stapled across framing to retain insulation in unlined wall and ceiling locations.
- 2.8 ADHESIVES
Solvent based glue.
- 2.9 ADHESIVE TAPE
Pressure sensitive adhesive tape.
Note: Ensure concrete is dust free before applying tape.

Accessories

- 2.10 WIRE NETTING
Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.
Use only to support roofing underlays that are not self-supporting, particularly for roofs under 8%. This product is not accepted as a safety mesh to AS/NZS 4389.

3. EXECUTION

Conditions

- 3.1 DELIVERY
Keep Mammoth™ Insulation dry in transit. Take delivery of insulation dry and undamaged and store in a location that protects insulation from the weather and damage. Reject all damaged materials.
- 3.2 STORAGE
Ensure storage areas are away from current work areas. Cover to keep dry until fixed. Insulation must not become wet. Avoid distortion, stretching, puncturing and damage to insulation and packaging.
- 3.3 HANDLING
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.
- 3.4 INSPECTION
Before starting installation of Mammoth™ Insulation, check that the location and framing are dry, that the cavities are not interconnected and that mesh, wall and roof underlays and vapour barriers are in place. Install when the building is enclosed and when the construction materials have achieved the maximum permitted moisture content or less.

Application - general

AS/NZS 60695.2.2, NZ only - Amendment A, introduces new classification of recessed luminaires (downlights). The new classification determines what types of recessed luminaires can be used in residential installations and whether they require a clearance to insulation. The luminaires must have their respective class permanently marked on the fitting. Mammoth™ polyester insulation meets the performance standards for insulation, including the needle flame test AS/NZS 60695.11.5.

3.5 INSTALL INSULATION - GENERAL

Lay, install, fit and fix to [NZBC H1/AS1](#): Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to [NZS 4218](#) and [NZS 4246](#). Install in large buildings to [NZS 4243.1](#) and [NZS 4220](#). Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Where possible lift up electrical wires, lighting transformers/controllers and lay the insulation underneath. Refer to manufacturer's installation instructions and [NZS 4246](#) for further details. [NZS 4218](#) and [NZS 4243.1](#) give minimum building element thermal resistance (R-values). *Achieving these will depend on the quality of the installation.*

CAUTION: Electrical cables and equipment partially or completely surrounded with bulk thermal insulation may overheat and fail. This applies to wiring installed prior to 1989.

3.6 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm clearance to [AS/NZS 3000](#), figure 4.9.
- Provide larger clearances where required by the light manufacturer.

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in [AS/NZS 60598.2.2](#); CA 80, CA 135, IC and IC - F.
- Classification type CA 80, CA 135, to [AS/NZS 60598.2.2](#); insulation can abut the sides
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight.
- Classification type NON IC to [AS/NZS 60598.2.2](#); insulation cannot abut or cover the downlight. This class of downlights is banned from residential applications.
- Provide larger clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance between insulation and downlights to [AS/NZS 3000](#), figure 4.9.

Insulation abutting or covering recessed luminaires (downlights) must pass the needle flame test to AS/NZS 60695.11.5.

NZBC C /AS3 - C/AS7 dictates that non-residential installations must have 100mm clearance.

3.7 CHECK FOILS

Ensure foils are dry, clean, undamaged and free of debris before being covered.

3.8 CHECK UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

3.9 CHECK VAPOUR BARRIERS

Ensure these form one homogeneous sheet vapour barrier and remain as such throughout the ensuing construction process.

Application thermal - underfloor

3.10 FIT MAMMOTH MULTI UNDERFLOOR SECTIONS - MEDIUM DENSITY

Friction fit **Mammoth™ Multi Underfloor** medium density, airway sections between floor joists and butt joints tightly to ensure there are no gaps. It can be compressed up to 35mm to fill the cavity and provide a firm, friction fit. Use an appropriate sharp craft knife, with replaceable blades or a specialised insulation saw to cut if required. In most cases Mammoth™ Underfloor Sections do not require mechanical fixings.

- 3.11 FIT MAMMOTH NOVAFLOOR SECTIONS - HIGH DENSITY
Friction fit **Mammoth™ NOVAfloor** high density, airway sections between floor joists and butt joints tightly to ensure there are no gaps. Any excess material is folded down on the joist on one side. Use an appropriate sharp craft knife, with replaceable blades or a specialised insulation saw to cut if required. In most cases Mammoth™ NOVAfloor Sections do not require mechanical fixings. Refer to manufacturer's instructions for further details.
- 3.12 FIT MAMMOTH UNDERFLOOR BLANKET
Fit **Mammoth™ Underfloor Blanket** between the floor joists to completely fill the space and staple blanket to each side of the joists ensuring it does not sag in the middle. In coastal areas use stainless steel staples to avoid corrosion. Slightly oversize the width to ensure a fold down on each joist and tear by hand to required length. Tear to smaller pieces for smaller spaces and around penetrations. Leave no gaps and maintain full thickness over the whole of the installation. Insulation should be stapled into place using a staple gun to each side of the joist. In coastal areas use stainless steel staples to avoid corrosion. Refer to manufacturer's instructions for further details.

Application thermal - walls

- 3.13 FIT MAMMOTH™ BLANKET/SECTIONS - TIMBER FRAMING
Friction fit **Mammoth™ Wall Sections** between framing members and linings, or fit over framing members and butt tightly to reduce convective heat loss through gaps. Cut/ rip on site to fill cavity and provide a close even fit. Tear to smaller pieces for smaller spaces and around penetrations to achieve efficient thermal performance. Do not fold, tuck or compress the insulation.
- 3.14 FIT MAMMOTH™ SECTIONS - STEEL FRAMING
Friction fit **Mammoth™ Wall Sections** inside the steel studs and cut on site to fit nog spacing. Fill cavity and provide a close even fit. Do not fold, tuck or compress the insulation. Use off cuts for smaller spaces and around penetrations to achieve efficient thermal performance.
- 3.15 FIT MAMMOTH™ BLANKET MASONRY WALL INSULATION
Friction fit **Mammoth™ Masonry Wall** as a continuous blanket in between strapping to [NZS 4246](#), clause 5.3.4, **Blankets - masonry walls**. Secure the blanket at the top of the wall and drape it down to the bottom plate. The blanket to be the same thickness as the framing. Do not fold, tuck or compress the insulation.
Designed to fit between strapping members fixed to masonry wall.

Application thermal - ceiling/roof

Some roofing may require ventilation clearance. Some polyester products may 'grow' in thickness well beyond their nominal thickness when installed in situations of high heat build up such as skillion type roofs. This excessive growth needs to be accommodated within the roof design to maintain the minimum 25mm gap.

- 3.16 LAY MAMMOTH™ BLANKET - OVER CEILING FRAMING
Loose lay **Mammoth™ Ceiling Blanket** over ceiling framing and between truss chords. Fit securely around all penetrations, leave clearances where required. Hand tear Mammoth™ Ceiling insulation blanket to length as required.
- 3.17 FIT MAMMOTH™ BLANKET - BETWEEN CEILING FRAMING
Friction fit **Mammoth™ Ceiling Blanket** between framing members/truss cords. Hand tear across the blanket to fit in small spaces and around penetrations. Leave no gaps and maintain full thickness of blanket over the whole of the installation. Leave clearance around metal flues to [NZS 4246](#) and the manufacturer's requirements.
- 3.18 FIT MAMMOTH™ BLANKET - DOUBLE LAYERED INSULATION
Friction fit first layer of **Mammoth™ Ceiling Blanket** parallel to and between ceiling framing members. Run a second layer of Mammoth™ Ceiling blanket at 90° to and over the first layer over framing members. Hand tear across blanket to fit between nogs and small spaces around penetrations. Leave no gaps and maintain full thickness of blanket

over the whole of the installation. Leave clearance around metal flues to [NZS 4246](#) and the manufacturer's requirements.

- 3.19 FIT MAMMOTH SKILLION ROOF SECTION - BETWEEN RAFTERS
Friction fit **Mammoth™ Skillion Roof Airly Sections** between ceiling rafters. Use an appropriate sharp craft knife with replaceable blades or specialised insulation saw to cut to size or around penetrations if required. Maintain a minimum clearance of 25mm between the insulation and the roofing membrane (underlay) except where a solid timber (or plywood) substrate is used under the roof cladding.
- 3.20 FIT INSULATING BLANKET - COMMERCIAL
Lay **Mammoth™ Ceiling Blanket** in the same direction as and over the mesh/vapour barrier, firmly butting edges and ends together to leave no gaps. Tear blanket by hand across the width for length. Maintain full thickness of the insulation blanket over the whole installation except where detailed otherwise.
- 3.21 CEILING INSULATION EDGE DETAIL
Where perimeter of ceiling space is too low to allow full depth of insulation plus the 25mm air gap, provide reduced perimeter insulation to [NZS 4246.5.2](#), **Ceilings - lined**.

Application - acoustic

- 3.22 FIT MAMMOTH NOVAHUSH ACOUSTIC BLANKET - WALL CAVITY
After the wall lining is fixed to one side of the wall/partition, staple **Mammoth™ NOVAhush Acoustic Blanket** to the underside of the top plate, dwang (nog) and friction fit the insulation between studs to complete the whole of the cavity. Leave no gaps. Slightly oversize to retain friction fit. Ensure insulation is fitted at its nominal thickness. Do not fold or tuck the insulation. Keep clean and undamaged until closed in. Close in as soon as possible after fixing.
Use Mammoth™ NOVAhush Acoustic Blanket in walls to create 'quiet zones' particularly in areas adjoining bathrooms, kids bedrooms, kitchens and family rooms.
- 3.23 FIT MAMMOTH™ NOVAHUSH ACOUSTIC SECTIONS - WALL CAVITY
After the wall lining is fixed to one side of the partition, friction fit **Mammoth™ NOVAhush Acoustic Sections** in the wall cavity to completely fill the wall. Slightly oversize to retain friction fit. Ensure insulation is fitted at its nominal thickness. Do not fold or tuck the insulation. Keep clean and undamaged until closed in.
- 3.24 FIT MAMMOTH™ NOVAHUSH ACOUSTIC BLANKET - MIDFLOORS
Friction fit **Mammoth™ NOVAhush Acoustic Blanket** between the joists to completely fill the space between them. Leave no gaps. Slightly oversize for a good friction fit. Maintain full thickness over the whole of the installation and fix with plastic strapping if necessary.
Modify to suit the project.
- 3.25 FIT MAMMOTH™ NOVAHUSH ACOUSTIC BLANKET - CEILING OVERLAY
Lay **Mammoth™ NOVAhush Acoustic Blanket** over ceiling grid firmly butting edges and joins to ensure no gaps. Maintain full thickness over whole installation.
Modify to suit the project ceiling construction.

Completion

- 3.26 CLEAN UP
Clean up as the work proceeds. Ensure no spare off cuts or any other materials remain behind claddings or linings.
- 3.27 LEAVE
Leave work to the standard required by following procedures.
- 3.28 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

For further details on selections go to www.mammoth.co.nz

If substitutions are permitted modify the statement above, ensure the NO SUBSTITUTIONS clause from GENERAL is treated the same.

Select the options to suit the project and delete options not specified.

Insulation thickness will vary with the R-Value, and stud sizing, so select accordingly to suit project and delete option not selected. Refer to the Mammoth™ Data Sheets for specific information and product selection.

Materials thermal - underfloor insulation

4.1 MAMMOTH™ MULTI UNDERFLOOR SECTIONS - MEDIUM DENSITY

Location: ~
 Brand: **Mammoth™ Multi Underfloor** (friction fitted, airlay)
 R Value: R1.9
 Thickness: 90mm
 Dimensions: ~

Available pre-cut to suit a wide range of floor joist spacing, so specify accordingly:

<i>Dimensions:</i>
<i>370mm x 800mm</i>
<i>370mm x 1140mm</i>
<i>425mm x 800mm</i>
<i>425mm x 1140mm</i>
<i>475mm x 800mm</i>
<i>475mm x 1140mm</i>
<i>580mm x 800mm</i>
<i>580mm x 1140mm</i>

4.2 MAMMOTH™ NOVAFLOOR SECTIONS - HIGH DENSITY

Location: ~
 Brand: **Mammoth™ NOVAfloor Underfloor** (friction fitted, airlay)
 R Value: R1.4
 Thickness: 55mm
 Dimensions: ~

Available pre-cut to suit a wide range of floor joist spacing, so specify accordingly:

<i>Dimensions:</i>
<i>1200mm x 375mm</i>
<i>1200mm x 435mm</i>
<i>1200mm x 485mm</i>
<i>1200mm x 535mm</i>
<i>1200mm x 580mm</i>
<i>1200mm X 600mm</i>

4.3 MAMMOTH™ UNDERFLOOR BLANKET

Location: ~
 Brand: **Mammoth™ Underfloor Blanket**
 R Value: R~
 Thickness: ~mm

Insulation blanket available for wall insulation with different R values and thickness, so specify accordingly.

<i>R value</i>	<i>Thickness:</i>	<i>Dimensions:</i>
<i>R1.5</i>	<i>100mm nominal thickness</i>	<i>450mm x 13890mm</i>
<i>R1.5</i>	<i>100mm nominal thickness</i>	<i>510mm x 16340mm</i>
<i>R1.5</i>	<i>100mm nominal thickness</i>	<i>600mm x 13890mm</i>
<i>R1.8</i>	<i>115mm nominal thickness</i>	<i>450mm x 11111mm</i>
<i>R1.8</i>	<i>115mm nominal thickness</i>	<i>510mm x 13070mm</i>
<i>R1.8</i>	<i>115mm nominal thickness</i>	<i>600mm x 11110mm</i>

Materials thermal - wall insulation

4.4 MAMMOTH™ WALL BLANKET - 140MM TIMBER STUD

Location: ~
 Brand: **Mammoth™ Wall Blanket**
 R-value: R~

Thickness: ~mm

Insulation blanket available for wall insulation with different R-values and thickness, so specify accordingly:

<i>R-value</i>	<i>Thickness:</i>	<i>Dimensions:</i>
R2.0	90mm nominal thickness	360mm x 9870mm
R2.0	90mm nominal thickness	560mm x 10800mm
R2.6	140mm nominal thickness	380mm x 8550mm
R2.6	140mm nominal thickness	580mm x 7470mm
R3.0	140mm nominal thickness	580mm x 8620mm

4.5 MAMMOTH™ WALL SECTIONS - AIRLAY

Location: ~

Brand: **Mammoth™ Wall Sections** (friction fitted, airlay)

R-value: R~

Thickness: ~mm

Insulation sections available for wall insulation with different R-values, so specify accordingly:

<i>R value</i>	<i>Thickness:</i>	<i>Dimensions</i>
R1.9	90mm nominal thickness	370mm x 800mm
R1.9	90mm nominal thickness	580mm x 800mm
R2.0	90mm nominal thickness	360mm x 760mm
R2.0	90mm nominal thickness	560mm x 760mm
R2.2	90mm nominal thickness	360mm x 760mm
R2.2	90mm nominal thickness	560mm x 760mm
R2.8	140mm nominal thickness	360mm x 760mm
R2.8	140mm nominal thickness	560mm x 760mm

For timber and steel applications.

4.6 MAMMOTH™ WALL SECTIONS

Location: ~

Brand: **Mammoth™ Wall Sections**

R-value: R2.5

Thickness: 90mm

Options for dimensions:

<i>R value</i>	<i>Thickness:</i>	<i>Dimensions</i>
R2.5	90mm nominal thickness	360mm x 760mm
R2.5	90mm nominal thickness	560mm x 760mm

For timber and steel applications.

4.7 MAMMOTH™ MASONRY WALL BLANKET

Location: ~

Brand: **Mammoth™ Masonry Wall Blanket**

R-value: R1.0

Thickness: 45mm

Insulation available 580mm x 12930mm.

4.8 MAMMOTH™ MASONRY WALL SECTIONS - AIRLAY

Location: ~

Brand: **Mammoth™ Masonry Wall Sections** (friction fit airlay)

R-value: R1.3

Thickness: 45mm

Insulation available with different dimensions.

<i>R value:</i>	<i>Thickness:</i>	<i>Dimensions:</i>
R1.3	45mm nominal thickness	360mm x 2400mm
R1.3	45mm nominal thickness	560mm x 2400mm

Materials thermal - ceiling/roof insulation

4.9 MAMMOTH™ CEILING BLANKET

Location: ~

Brand: **Mammoth™ Ceiling Blanket**

R-value: R~

Thickness: ~mm

Insulation blanket available for ceiling insulation with different R-values, so specify accordingly:

<i>R value:</i>	<i>Thickness:</i>	<i>Dimensions:</i>
R1.8	115mm nominal thickness	870mm x 11495mm

R2.9	185mm nominal thickness	870mm x 8620mm
R3.2	200mm nominal thickness	870mm x 8620mm
R3.6	225mm nominal thickness	870mm x 7470mm
R4.0	240mm nominal thickness	870mm x 5750mm

Insulation blanket laid over ceiling battens and joists, or between trusses, is offered to achieve the maximum construction R-value. Available 870mm wide for framing at 900mm centres or custom width, loose-laid on ceiling battens and between truss chords.

4.10 MAMMOTH™ CEILING BLANKET - DOUBLE LAYERED INSULATION

Location: ~
Brand: **Mammoth™ Ceiling Blanket**
R-value: ~
Thickness: ~

Insulation blanket available for ceiling insulation with different R-values, so specify accordingly:

R value:	Thickness:	Dimensions:
R1.8	115mm nominal thickness	870mm x 11495mm
R2.9	185mm nominal thickness	870mm x 8620mm
R3.2	200mm nominal thickness	870mm x 8620mm
R3.6	225mm nominal thickness	870mm x 7470mm
R4.0	240mm nominal thickness	870mm x 5750mm

Friction fit first layer parallel to and between ceiling framing members. Run a second layer at 90° to and over the first layer over framing members

4.11 MAMMOTH™ SKILLION ROOF

Location: ~
Brand: **Mammoth™ Skillion Roof** (friction fitted, airway)
R Value: ~
Thickness: ~mm

Insulation pad friction fitted in timber framed membrane roofs and skillion roofs.

Insulation thickness will vary with the R-value so select accordingly:

R value:	Thickness:	Dimensions:
R2.9	115mm nominal thickness	560mm x 1200mm
R2.9	115mm nominal thickness	860mm x 1200mm
R3.2	165mm nominal thickness	570mm x 1200mm
R3.2	165mm nominal thickness	870mm x 1200mm

Available 560mm and 870mm wide to fit between ceiling battens

Materials - acoustic insulation

4.12 MAMMOTH™ NOVAHUSH ACOUSTIC BLANKET

Location: ~
Brand: **Mammoth™ NOVAhush Acoustic Blanket**
Product: Mammoth™ 900
Thickness: 92mm
STC: 48

Select accordingly to suit performance requirement.

Typically used for steel framing/ceiling overlay to reduce sound transference.

Product	Stud size	Linings both sides	STC (Rw)
Mammoth™ NOVAhush Blanket	92mm	13mm Noise Liner plasterboard	48 (Rw 47)

Typically used for 90mm timber stud and midfloor applications to reduce sound transference. Refer to Mammoth™ for STC rating.

Product	Stud size
Mammoth™ NOVAhush	90mm timber

Higher rates can be achieved with different choices of studs and linings, refer to table below for available options.

Product	Stud	Lining	STC
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 13mm Gib Standard	50
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 13mm Gib Noiseline	52
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	2 x 13mm Standard Gib	56

Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 10mm & 1 x 13mm Gib Noiseline	59
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4.13

MAMMOTH™ NOVAHUSH ACOUSTIC SECTIONS

Location: ~
 Brand: **Mammoth™ NOVAhush Acoustic Sections** (friction fitted, airway)
 Product: Mammoth™ 1000
 Thickness: 90mm
 STC: 48

Select accordingly to suit performance requirement.

Typically used for steel framing/ceiling overlay to reduce sound transference.

Product	Stud size	Linings both sides	STC (Rw)
Mammoth™ NOVAhush Section	92mm	13mm Noise Liner plasterboard	48 (Rw 47)

Typically used for 90mm timber stud and midfloor applications to reduce sound transference. Refer to Mammoth™ for STC rating.

Product	Stud size
Mammoth™ NOVAhush	90mm timber

Higher rates can be achieved with different choices of studs and linings, refer to table below for available options.

Product	Stud	Lining	STC
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 13mm Gib Standard	50
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 13mm Gib Noiseline	52
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	2 x 13mm Standard Gib	56
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 10mm & 1 x 13mm Gib Noiseline	59

4711M MAMMOTH THERMAL INSULATION

1. GENERAL

If you have pre-customised this work section using the "questions and answers" provided as part of the downloading process, it may be necessary to amend some clauses to suit the final project-specific version.

The section must still be checked and customised to suit the project being specified, by removing any other irrelevant details and adding project-specific details and selections.

This section relates to **Mammoth™** insulation installed, laid, hung or fitted as thermal insulation.

It includes;

- Mammoth™ Wall Insulation
- Mammoth™ Underfloor Insulation
- Mammoth™ Ceiling Insulation
- Mammoth™ Skillion Roof Insulation
- Mammoth™ Carpark Panel Insulation
- Mammoth™ Thermal Break Insulation

Modify or extend the above description to suit the project being specified.

NZS 4218 and NZS 4243.1 provide a schedule, a calculation and a modelling method for determining insulation to meet NZBC H1. Ensure SELECTIONS reflect the project requirements.

1.1 RELATED WORK

Refer to 4721M MAMMOTH ACOUSTIC INSULATION for acoustic insulation.

Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlays, roofing underlays, foils and films.

Include cross references to other sections where these contain related work.

Refer to roofing sections for roofing underlays.

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS1-AS6	Protection from fire
NZBC C/VM2	Protection from fire
NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
NZS 4218:2004	Energy efficiency - Small building envelope
NZS 4220	Code of practice for energy conservation in non-residential buildings
NZS 4243.1	Energy efficiency - Large buildings - Building thermal envelope
NZS 4246	Energy efficiency - Installing insulation in residential buildings
AS/NZS 4859.1	Materials for the thermal insulation of buildings - General criteria and technical provisions
AS/NZS 60598.2.2	Luminaires- Particular Requirements - Recessed luminaires
ASTM C518	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

NZS 4218:2004 Energy Efficiency - Small Building Envelope, is recognised by NZBC, NZS 4218:2009 Thermal Insulation - Housing and Small Buildings, has not at the time of writing been recognised by NZBC. Consult with the BCA as to their requirements.

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents. The following are related documents and if referred to in the work section need to be added to the list of DOCUMENTS.

NZBC H1/VM1	Energy efficiency
NZS 4214	Methods of determining the total thermal resistance of parts of buildings.
NZS 3602	Timber and wood-based products for use in building
SNZ/PAS 4244	Insulation of lightweight-framed and solid-timber houses
AS/NZS 4389	Safety Mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
BRANZ BU 427	Improving thermal insulation
BRANZ BU 429	Calculating R-values for timber framed buildings

BRANZ BU 519 Fasteners selection
BRANZ BU 460 Internal moisture control
BRANZ BU 461 Practical sound control
BRANZ BU 539 Recessed downlights
BRANZ publication House insulation guide

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Mammoth Brochure: Mammoth feel the warmth
Mammoth Product Data Sheet: Mammoth Wall Insulation
Mammoth Ceiling Blankets
Mammoth Underfloor Insulation
Mammoth Skillion Roof Insulation
Mammoth Friction Fitted Airlay Insulation
Mammoth Carpark Panel Data Sheet
Mammoth Thermal Break Data Sheet

[BRANZ Appraisal 802](#) - Mammoth™ Underfloor Insulation

[BRANZ Appraisal 797](#) - Mammoth™ Insulation

Living Building Challenge: Declare Program - Red List Free Declaration Status for Mammoth insulation

Manufacturer/supplier contact details

Company: **InsulPro Manufacturing Limited**

Web: www.mammoth.co.nz

Email: info@mammoth.co.nz

Telephone: 0800 MAMMOTH (626 668)

Facsimile: 09 273 2309

It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Mammoth is manufactured by InsulPro Manufacturing Ltd – a carboNZero certified organisation.

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years: For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify or expand the clause to suit project or manufacturer/supplier requirements, options include:

- *Change the standard form to be used (check with the manufacturer/supplier, use the general section 1237WA WARRANTY AGREEMENT if required)*
- *Commence the warranty from the date of purchase (check with the manufacturer/supplier)*

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years For execution

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify or expand the clause to suit project or installer/applicator requirements, options include:

- *Change the standard form to be used (check with the installer/applicator, use the general section 1237WA WARRANTY AGREEMENT if required)*
- *Commence the warranty from the date of installation (check with the installer/applicator)*

Requirements

- 1.6 QUALIFICATIONS
Work to be carried out by tradesmen experienced, competent and familiar with the Mammoth™ insulation materials and techniques specified.
- 1.7 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Mammoth™ insulation, associated products, components or accessories.

Performance

- 1.8 FIRE GROUP NUMBERS - UNFINISHED PANEL
The Group Number Classification to [NZBC C/AS1-AS6](#), Table 4.1, has been determined in accordance with [NZBC C/VM2 Appendix A](#), following testing ISO 9705. Refer to Mammoth™ Data Sheets for fire performance results.

Group number:

Product:	Group number:
Mammoth™ Carpark Panel Insulation	1S

Delete clause if not required. A Group Number may not be required in situations such as, the surface area is less than 5m² (NZBC C/AS2-AS7, 4.17.6.a), or the design is to NZBC C/AS1 risk group SH (houses etc).

Consult with the project Fire Consultant and/or the Services Engineer if necessary.

2. PRODUCTS

Materials

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5. Mammoth insulation meets this requirement.

- 2.1 MAMMOTH™ SECTIONS - AIRLAY, FRICTION FIT
Mammoth™ airway sections to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#), and [NZS 4220](#). 100% white, non woven polyester fibres thermally bonded to produce self supporting and friction fitted insulation sections. Machine slit to the required width and cut to length. Refer to SELECTIONS for location, type, R Value and thickness.
For walls, underfloor and skillion roof insulation. Underfloor sections come in medium density or high density airway insulation sections.
- 2.2 MAMMOTH™ SECTIONS
Mammoth™ sections to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#) and [NZS 4220](#). 100% white semi-rigid polyester fibres thermally bonded to produce insulation pads. Refer to SELECTIONS for location, type, R-Value and thickness.
For wall insulation.
- 2.3 MAMMOTH™ BLANKETS
Mammoth™ blanket rolls to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#) and [NZS 4220](#). 100% white non woven lofted polyester fibres thermally bonded to produce insulation blankets. Refer to SELECTIONS for location, type, R-Value and thickness.
For ceiling, wall and underfloor insulation.
- 2.4 MAMMOTH™ CARPARK PANEL
Mammoth™ Carpark Panel, friction fit airway panels to ASTM C518. 100% non woven, medium density polyester fibres, thermally bonded to produce insulation panels. Machine slit to a standard width and cut to length. Refer to SELECTIONS for location, type, R-value and thickness.
The panels are designed to improve thermal performance of carpark ceilings for residential and commercial buildings. Prevents air movement between the insulation panel and the substrate.
- 2.5 MAMMOTH™ THERMAL BREAK SHEETS
Mammoth™ Thermal Break, airway sheets to ASTM C518. 100% non woven polyester fibres, thermally bonded to produce high density insulation sheets. Machine slit to a standard width and cut to length. Refer to SELECTIONS for location, type, R-value and thickness.

Designed to provide thermal separation between steel framing and external cladding in steel frame construction. In addition to preventing condensation on steel frame elements. Mammoth™ Thermal Break will also contribute to the overall thermal performance of the walls. Can be on site or factory installed.

Components

- 2.6 **FASTENERS**
Insulation anchors complete with retained washer. 25mm general purpose polyester webbing, 1500kg breaking strain.
- 2.7 **TAPES**
Proprietary plastic strapping tape, stapled across framing to retain insulation in unlined wall and ceiling locations.
- 2.8 **ADHESIVES**
Solvent based contact adhesive.
- 2.9 **ADHESIVE TAPE**
Pressure sensitive adhesive tape.
Note: Ensure concrete is dust free before applying tape.

Accessories

- 2.10 **WIRE NETTING**
Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.
Use only to support roofing underlays that are not self-supporting, particularly for roofs under 8%.

3. EXECUTION

Conditions

- 3.1 **DELIVERY**
Keep Mammoth insulation dry in transit. Take delivery of insulation dry and undamaged and store in a location that protects them from the weather and damage. Reject all damaged materials.
- 3.2 **STORAGE**
Ensure storage areas are away from current work areas. Cover to keep dry until fixed. Insulation must not become wet. Avoid distortion, stretching, puncturing and damage to insulation and packaging.
- 3.3 **HANDLING**
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the product.
- 3.4 **INSPECTION**
Install when the building is enclosed and when the construction materials have achieved the maximum permitted moisture content or less. Before starting installation of Mammoth Insulation, check the cavities are not interconnected and that mesh, wall and roofing underlays and vapour barriers are in place.

Application - general

AS/NZS 60695.2.2, NZ-only Amendment A, introduces the new classifications of recessed luminaires (downlights). The new classification determines what types of recessed luminaires can be used in residential installations and whether they require a clearance to insulation. The luminaires must have their respective class permanently marked on the fitting. Mammoth™ polyester insulation meets the performance standards for insulation, including the Needle Flame test to AS/NZS 60695.11.5.

- 3.5 **INSTALL INSULATION - GENERAL**
Lay, install, fit and fix to [NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope](#), and to manufacturer's requirements. Install in housing to [NZS 4218](#) and [NZS 4246](#).

Install in large buildings to [NZS 4243.1](#) and [NZS 4220](#). Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clearance around metal flues and chimneys to [NZS 4246](#) and as recommended by the fireplace manufacturer. Where possible do not cover electrical wires. Do not cover lighting transformers/controllers and leave appropriate clearance. Refer to manufacturer's installation instructions for further details.

These standards give minimum building element thermal resistance (R-values). Achieving these will depend on the quality of the installation and other factors.

CAUTION: Electrical cables and equipment partially or completely surrounded with bulk thermal insulation may overheat and fail. For example this applies to wiring installed prior to 1989.

3.6 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm gap to [AS/NZS 3000](#), figure 4.9.
- Provide larger clearance where required by the light manufacturer.

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in [AS/NZS 60598.2.2](#); CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to [AS/NZS 60598.2.2](#); insulation can abut the sides
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight
- Classification type NON IC to [AS/NZS 60598.2.2](#); insulation cannot abut or cover the downlight. This class of downlights is banned from residential applications.
- Provide larger clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the downlight to insulation to [AS/NZS 3000](#), figure 4.9.

Insulation abutting or covering recessed luminaires (downlights) must pass the needle flame test to [AS/NZS 60695.11.5](#).

NZBC C/AS3 - C/AS7 dictate that non-residential installations must have 100mm clearance.

3.7 CHECK FOILS

Ensure foils are dry, clean, undamaged and free of debris before being covered.

3.8 CHECK UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

3.9 CHECK VAPOUR BARRIERS

Ensure these form one homogeneous sheet vapour barrier and remain as such throughout the ensuing construction process.

Application - underfloor

3.10 FIT MAMMOTH MULTI UNDERFLOOR SECTIONS - MEDIUM DENSITY

Friction fit **Mammoth™ Multi Underfloor** medium density, airway sections between floor joists and butt joints tightly to ensure there are no gaps. It can be compressed up to 35mm to fill the cavity and provide a firm, friction fit. Use an appropriate sharp craft knife, with replaceable blades or a specialised insulation saw to cut to required width. In most cases Mammoth™ Multi Underfloor Sections do not require mechanical fixings.

3.11 FIT MAMMOTH NOVAFLOOR SECTIONS - HIGH DENSITY

Friction fit **Mammoth™ NOVAfloor** high density, airway sections between floor joists and fold excess width down on the joist on one side. Butt joints tightly to ensure there are no gaps. Use an appropriate sharp craft knife, with replaceable blades or a specialised insulation saw to cut to required width. Mammoth™ NOVAfloor Sections do not require mechanical fixings. Refer to manufacturer's instructions for further details.

3.12 FIT MAMMOTH UNDERFLOOR BLANKET

Fit **Mammoth™ Underfloor Blanket** between the floor joists and staple blanket to each side of the joists. In coastal areas use stainless steel staples to avoid corrosion. Make sure that the blanket is hard up against the underside of the floor and does not sag. Slightly oversize the width to ensure a fold down on each joist. Tear by hand to required

length. Tear to smaller pieces for smaller spaces and around penetrations. Leave no gaps, other than around downpipes, and maintain full thickness over the whole of the installation. Refer to manufacturer's instructions for further details.

Application - walls

- 3.13 FIT MAMMOTH BLANKET/SECTIONS - TIMBER FRAMING
Friction fit **Mammoth™ Wall** between framing members and linings, or fit over framing members and butt tightly to reduce heat loss through gaps. Cut/ rip on site to fill cavity and provide a quality even fit. Tear to smaller pieces for smaller spaces and around penetrations to achieve designed thermal performance. Do not fold, tuck or compress the insulation.
- 3.14 FIT MAMMOTH SECTIONS - STEEL FRAMING
Ensure the product supplied is of the right length for steel frames. Friction fit **Mammoth™ Wall** inside the steel studs and cut on site to fit around diagonal bracing elements. Fill cavity and provide a close even fit. Do not fold, tuck or compress the insulation as much as possible. Insulation will be compressed down to 76mm at the point of entry to the C channel (stud) – this is due to 8mm flange on either side of the C channel. Cut smaller pieces for smaller spaces and around penetrations for a snug fit.
- 3.15 FIT MAMMOTH BLANKET - STRAPPED MASONRY WALLS
Friction fit **Mammoth™ Masonry Wall** as a continuous blanket in between battens to [NZS 4246](#), clause 5.3.4, **Blankets - masonry walls**. Secure the blanket at the top of the wall and drape it down to the bottom plate. The blanket to be the same thickness as the battens. Do not fold, tuck or compress the insulation.
- 3.16 FIX MAMMOTH THERMAL BREAK SHEETS
Fix **Mammoth™ Thermal Break** sheets to manufacturer's installation instructions. Fix sheets to steel frames using glue and/or ballistic tip shank nails. Firmly butt joints together and ensure the joints between sheets are on studs and/or noggs.
Used between steel framing and external cladding in steel frame construction. Can be on site or factory installed.

Application - ceiling/roof

Some roofing may require ventilation clearance. Some polyester products may 'grow' in thickness well beyond their out-of-pack thickness when installed in situations of high heat build up such as skillion type roofs. This excessive growth needs to be accommodated within the roof design to maintain the minimum 25mm gap.

- 3.17 LAY MAMMOTH BLANKET - OVER CEILING FRAMING
Loose lay **Mammoth™ Ceiling Blanket** over ceiling framing and between truss chords. Fit securely around all penetrations, leave clearances where required. Hand tear Mammoth™ Ceiling Blanket to length as required.
- 3.18 FIT MAMMOTH BLANKET - BETWEEN CEILING FRAMING
Friction fit **Mammoth™ Ceiling Blanket** between framing members. Hand tear across the blanket to fit between noggs and small spaces around penetrations. Leave no gaps and maintain full thickness of blanket over the whole of the installation. Leave clearance around metal flues, recessed light fittings, etc to [NZS 4246](#) and the manufacturer's requirements.
- 3.19 FIT MAMMOTH BLANKET - DOUBLE LAYERED INSULATION
Friction fit first layer of **Mammoth™ Ceiling Blanket** parallel to and between ceiling framing members. Run a second layer of Mammoth™ Ceiling Blanket at 90° to and over the first layer over framing members. Hand tear across blanket to fit between noggs and small spaces around penetrations. Leave no gaps and maintain full thickness of blanket over the whole of the installation. Leave clearance around metal flues, recessed light fittings, etc to [NZS 4246](#) and the manufacturer's requirements.
- 3.20 FIT MAMMOTH SKILLION ROOF SECTION - BETWEEN RAFTERS
Friction fit **Mammoth™ Skillion Roof Airly Sections** between ceiling rafters. Use an appropriate sharp craft knife with replaceable blades or specialised insulation saw to cut

to size or around penetrations if required. Maintain a minimum clearance of 25mm between the insulation and the roofing membrane (underlay) including where a solid timber (or plywood) substrate is used under the roof cladding.

- 3.21 FIT INSULATING BLANKET - COMMERCIAL / INDUSTRIAL
Lay the **Mammoth™ Ceiling Blanket** in the same direction as and over the mesh/vapour barrier, firmly butting edges and ends together to leave no gaps. Tear blanket by hand across the width for length. Maintain full thickness of the insulation blanket over the whole installation except where detailed otherwise.
- 3.22 FIT MAMMOTH CARPARK PANELS - CONCRETE SUBSTRATE
Fit **Mammoth™ Carpark Panels** to underside of soffit to manufacturer's instructions. Firmly butt joints together to leave no gaps. Maintain full thickness of the insulation and cut around services to friction fit in place. Fix using appropriate contact adhesive or automated fastening tool and suitable fasteners.
- 3.23 CEILING INSULATION EDGE DETAIL
Where perimeter of ceiling space is too low to allow full depth of insulation plus the 25mm air gap, provide reduced perimeter insulation to [NZS 4246.5.2](#), **Ceilings - lined**.
- 3.24 FIX DRAPED WIRE NETTING
Drape mesh at right angles across purlins with enough slack to allow insulation to retain its nominal thickness. Fix netting to every purlin to ensure even draping. Tie edges of netting together with galvanised wire clips.
Use this clause when fitting insulation over purlins or joists, all to the insulation manufacturer's requirements.
Where the insulation material is not laid directly on a ceiling lining or over ceiling battens, joists and the like, it must be adequately supported by galvanised wire netting or some other suitable corrosion free material to Mammoth™ insulation requirements.

Completion

- 3.25 CLEAN UP
Clean up as the work proceeds. Ensure no spare off cuts or any other materials remain behind claddings or linings.
- 3.26 LEAVE
Leave work to the standard required by following procedures.
- 3.27 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

For further details on selections go to www.mammoth.co.nz
Substitutions are not permitted to the following, unless stated otherwise.
If substitutions are permitted modify the statement above, ensure the NO SUBSTITUTIONS clause from GENERAL is treated the same.

Select the options to suit the project and delete options not specified.

Insulation thickness will vary with the R-Value, and stud sizing, so select accordingly to suit project and delete option not selected. Refer to the Mammoth™ Data Sheets for specific information and product selection.

Underfloor insulation

- 4.1 MAMMOTH™ MULTI UNDERFLOOR SECTIONS - MEDIUM DENSITY
Location: ~
Brand: **Mammoth™ Multi Underfloor** (friction fitted, airlay)
R Value: R1.9
Thickness: 90mm
Dimensions: ~
Available pre-cut to suit a wide range of floor joist spacing, so specify accordingly:
Options

<i>Dimensions:</i>
370mm x 800mm
370mm x 1140mm
425mm x 800mm
425mm x 1140mm
475mm x 800mm
475mm x 1140mm
580mm x 800mm
580mm x 1140mm

4.2 MAMMOTH™ NOVAFLOOR SECTIONS - HIGH DENSITY

Location: ~
Brand: **Mammoth™ NOVAfloor Underfloor** (friction fitted, airlay)
R Value: R1.4
Thickness: 55mm
Dimensions: ~

Available pre-cut to suit a wide range of floor joist spacing, so specify accordingly:

Options:

<i>Dimensions</i>
1200mm x 375mm
1200mm x 435mm
1200mm x 485mm
1200mm x 535mm
1200mm x 580mm
1200mm X 600mm

4.3 MAMMOTH™ UNDERFLOOR BLANKET

Location: ~
Brand: **Mammoth™ Underfloor Blanket**
R Value: R~
Thickness: ~mm

Insulation blanket available for wall insulation with different R values and thickness, so specify accordingly.

Options

<i>R value</i>	<i>Thickness:</i>	<i>Dimensions:</i>
R1.5	100mm nominal thickness	450mm x 13890mm
R1.5	100mm nominal thickness	510mm x 16340mm
R1.5	100mm nominal thickness	600mm x 13890mm
R1.8	115mm nominal thickness	450mm x 11111mm
R1.8	115mm nominal thickness	510mm x 13070mm
R1.8	115mm nominal thickness	600mm x 11110mm

Wall insulation

4.4 MAMMOTH™ WALL BLANKET - 140MM TIMBER STUD

Location: ~
Brand: **Mammoth™ Wall Blanket**
R Value: R~
Thickness: ~mm

Insulation blanket available for wall insulation with different R values and thickness, so specify accordingly.

Options:

<i>R value</i>	<i>Thickness:</i>	<i>Dimensions:</i>
R2.2	90mm nominal thickness	360mm x 9870mm
R2.2	90mm nominal thickness	560mm x 10800mm
R2.6	140mm nominal thickness	380mm x 8550mm
R2.6	140mm nominal thickness	580mm x 7470mm
R3.0	140mm nominal thickness	580mm x 8620mm

4.5 MAMMOTH™ WALL SECTIONS - AIRLAY

Location: ~
Brand: **Mammoth™ Wall Sections** (friction fitted, airlay)
R Value: R~
Thickness: ~mm

Insulation sections available for wall insulation with different R values, so specify accordingly.

Options:

<i>R value</i>	<i>Thickness:</i>	<i>Dimensions</i>
<i>R1.9</i>	<i>90mm nominal thickness</i>	<i>370mm x 800mm</i>
<i>R1.9</i>	<i>90mm nominal thickness</i>	<i>580mm x 800mm</i>
<i>R2.0</i>	<i>90mm nominal thickness</i>	<i>360mm x 760mm</i>
<i>R2.0</i>	<i>90mm nominal thickness</i>	<i>560mm x 760mm</i>
<i>R2.2</i>	<i>90mm nominal thickness</i>	<i>360mm x 760mm</i>
<i>R2.2</i>	<i>90mm nominal thickness</i>	<i>560mm x 760mm</i>
<i>R2.8</i>	<i>140mm nominal thickness</i>	<i>360mm x 760mm</i>
<i>R2.8</i>	<i>140mm nominal thickness</i>	<i>560mm x 760mm</i>

For timber and steel applications.

4.6 MAMMOTH™ WALL SECTIONS

Location: ~
Brand: **Mammoth™ Wall Sections**
R Value: R2.5
Thickness: 90mm

Options for dimensions:

<i>R value</i>	<i>Thickness:</i>	<i>Dimensions</i>
<i>R2.5</i>	<i>90mm nominal thickness</i>	<i>360mm x 760mm</i>
<i>R2.5</i>	<i>90mm nominal thickness</i>	<i>560mm x 760mm</i>

For timber and steel applications.

4.7 MAMMOTH™ MASONRY WALL BLANKET

Location: ~
Brand: **Mammoth™ Masonry Wall Blanket**
R Value: R1.0
Thickness: 45mm

Insulation available 580mm x 12930mm.

4.8 MAMMOTH™ MASONRY WALL SECTIONS - AIRLAY

Location: ~
Brand: Mammoth™ Masonry Wall **Sections** (friction fit airway)
R Value: R1.3
Thickness: 45mm

Insulation available with different dimensions.

<i>R value:</i>	<i>Thickness:</i>	<i>Dimensions:</i>
<i>R1.3</i>	<i>45mm nominal thickness</i>	<i>360mm x 2400mm</i>
<i>R1.3</i>	<i>45mm nominal thickness</i>	<i>560mm x 2400mm</i>

4.9 MAMMOTH™ THERMAL BREAK

Location: ~
Brand: **Mammoth™ Thermal Break**
R-Value: R0.38
NRC: 0.5
Thickness: 13mm

Dimensions: 2420mm x 1800mm

Facing: ~

Option:

<i>Facing:</i>	<i>Faced on one side or un-faced</i>
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Application: To provide thermal separation between steel framing and external cladding in steel frame construction.

Ceiling insulation

4.10 MAMMOTH™ CEILING BLANKET

Location: ~
Brand: **Mammoth™ Ceiling Blanket**
R Value: R~
Thickness: ~mm

Insulation blanket available for ceiling insulation with different R values, so specify accordingly:

<i>R value:</i>	<i>Thickness:</i>	<i>Dimensions:</i>
<i>R1.8</i>	<i>115mm nominal thickness</i>	<i>870mm x 11495mm</i>
<i>R2.9</i>	<i>185mm nominal thickness</i>	<i>870mm x 8620mm</i>
<i>R3.2</i>	<i>200mm nominal thickness</i>	<i>870mm x 8620mm</i>

R3.6	225mm nominal thickness	870mm x 7470mm
R4.0	240mm nominal thickness	870mm x 5750mm

Insulation blanket laid over ceiling battens and joists, or between trusses, is offered to achieve the maximum construction R Value. Available 870mm wide for framing at 900mm centres or custom width, loose-laid on ceiling battens and between truss chords.

4.11 MAMMOTH™ CEILING BLANKET - DOUBLE LAYERED INSULATION

Location: ~
Brand: **Mammoth™ Ceiling Blanket**
R Value: ~
Thickness: ~

Insulation blanket available for ceiling insulation with different R values, so specify accordingly:

R value:	Thickness:	Dimensions:
R1.8	115mm nominal thickness	870mm x 11495mm
R2.9	185mm nominal thickness	870mm x 8620mm
R3.2	200mm nominal thickness	870mm x 8620mm
R3.6	225mm nominal thickness	870mm x 7470mm
R4.0	240mm nominal thickness	870mm x 5750mm

Friction fit first layer parallel to and between ceiling framing members. Run a second layer at 90° to and over the first layer over framing members.

4.12 MAMMOTH™ CARPARK PANEL

Location: ~
Brand: **Mammoth™ Carpark Panel** (friction fitted, airtight)
R-Value: R1.7
Thickness: 70mm
Dimensions: 2400mm x 1200mm

4.13 MAMMOTH™ SKILLION ROOF SECTIONS

Location: ~
Brand: **Mammoth™ Skillion Roof** (friction fitted, airtight)
R-Value: ~
Thickness: ~mm

Insulation pad friction fitted in timber framed membrane roofs and skillion roofs: Insulation thickness will vary with the R-value so select accordingly.

Options:

R value:	Thickness:	Dimensions:
R2.9	115mm nominal thickness	560mm x 1200mm
R2.9	115mm nominal thickness	860mm x 1200mm
R3.2	165mm nominal thickness	570mm x 1200mm
R3.2	165mm nominal thickness	870mm x 1200mm

Available 560mm and 870mm wide to fit between ceiling battens.

4721M MAMMOTH ACOUSTIC INSULATION

1. GENERAL

If you have pre-customised this work section using the "questions and answers" provided as part of the downloading process, it may be necessary to amend some clauses to suit the final project-specific version.

The section must still be checked and customised to suit the project being specified, by removing any other irrelevant details and adding project-specific details and selections.

This section relates to InsulPro **Mammoth™ NOVAhush** acoustic insulation installed, laid, hung or fitted as acoustic insulation.

- **Mammoth™ NOVAhush** Acoustic Insulation
- **Mammoth™ NOVAhush** Baffle Stack
- **Mammoth™ NOVAhush** Panel Absorber
- **Mammoth™ NOVAhush** Duct Liner

Modify or extend the above description to suit the project being specified.

1.1 RELATED WORK

Refer to 4711M MAMMOTH THERMAL INSULATION for thermal insulation.

Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlay, roofing underlays, foils and films.

Refer to 5311N MAMMOTH NOVAHUSH ACOUSTIC CEILING TILES for acoustic ceiling tiles in a suspended ceiling system.

Include cross references to other sections where these contain related work.

Refer to roofing sections for roofing underlays.

Include related sound reduction systems that insulation forms part of.

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

STC	sound transmission class rating
IIC	impact insulation class
Rw	Weighted Sound Reduction Index is sometimes used, the Rw numbers will be very similar to the equivalent STC numbers.

NRC measures absorption of sound for a material or surface, range between 0 and 1.0, 1.0 being the theoretical most absorbent, useful for reverberation control.

STC is the amount of airborne sound transmission loss through a complete construction like a wall or floor, measured in decibels (dB)

IIC is the amount of impact sound transmission loss through a complete construction like a floor, measured in decibels (dB)

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

[NZBC C/AS1-AS7](#) Protection from fire

[NZBC G6/VM1](#) Airborne and impact sound

[AS/NZS 3000](#) Electrical installations

[AS/NZS 60598.2.2](#) Luminaires- Particular Requirements - Recessed luminaires

[AS/NZS 60695.11.5](#) Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance

ISO 140 Acoustics - Measurement of sound insulation in buildings and of building elements - Part 4: Field measurements of airborne sound insulation between room

ISO 9705 Fire Test – Full scale room tests for surface products

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents. The following are related documents and if referred to in the work section need to be added to the list of DOCUMENTS.

[NZBC H1/AS1](#) Energy efficiency

[NZS 3604](#) Timber-framed buildings

[NZS 4246](#) Energy efficiency - Installing insulation in residential buildings

BRANZ BU 426 *Achieving acoustic separation*
BRANZ BU 519 *Fasteners selection*
BRANZ BU 461 *Practical sound control*
BRANZ BU 539 *Recessed downlights*

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Mammoth Brochure: Mammoth™ feel the warmth
 Mammoth™ Airlay Systems performance
Mammoth Product Data Sheet: Mammoth™ NOVAhush Acoustic Insulation
 Mammoth™ NOVAhush Bafflestack
 Mammoth™ NOVAhush Panel Absorber
 Mammoth™ NOVAhush Duct Liner

Living Building Challenge: Declare Program - Red List Free Declaration Status for Mammoth insulation.

Manufacturer/supplier contact details

Company: **InsulPro Manufacturing Limited**
Web: www.mammoth.co.nz
Email: info@mammoth.co.nz
Telephone: 0800 MAMMOTH (0800 626 668)
Facsimile: 09 273 2309

It is important to ensure that all personnel on-site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Mammoth is manufactured by InsulPro Manufacturing Ltd – a carboNZero certified organisation.

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years: For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify or expand the clause to suit project or manufacturer/supplier requirements, options include:

- *Change the standard form to be used (check with the manufacturer/supplier, use the general section 1237WA WARRANTY AGREEMENT if required)*
- *Commence the warranty from the date of purchase (check with the manufacturer/supplier)*

1.6 WARRANTY - APPROVED INSTALLER/APPLICATOR

Provide an approved installer/applicator warranty

5 years: For execution

- Provide this warranty on the approved installer/applicator standard form
- Commence the warranty from the date of practical completion of the contract works

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify or expand the clause to suit project or installer/applicator requirements, options include:

- *Change the standard form to be used (check with the installer/applicator, use the general section 1237WA WARRANTY AGREEMENT if required)*
- *Commence the warranty from the date of installation (check with the installer/applicator)*

Requirements

- 1.7 **QUALIFICATIONS**
Work to be carried out by tradesmen experienced, competent and familiar with the Mammoth™ insulation materials and techniques specified.
- 1.8 **NO SUBSTITUTIONS**
Substitutions are not permitted to any specified Mammoth™ insulation, associated products, components or accessories.
- Performance**
Use site performance testing only where this is specifically required.
- 1.9 **SOUND RATING REQUIREMENTS**
Provide sound rated wall, floor and ceiling systems as detailed in SELECTIONS.
- 1.10 **SOUND CONTROL SITE TEST**
Site test each sound rated element in accordance with [NZBC G6/VM1](#) to ensure that the specified sound transmission loss has been achieved using a nominated acoustic consultant. Carry out sound tests wall by wall to ISO 140, part 4 to certify compliance. Rectify any element that does not meet the specified STC/IIC figure.
Use this clause where as built certification is required for a system that has not been tested elsewhere.
- 1.11 **SURFACE FIRE PROPERTIES**
NOVAhush Panel Absorber, NOVAhush Acoustic Blanket and NOVAhush Bafflestack, tested or assessed to ISO 9705 and have a Group Number 1S to [NZBC C/AS2 - AS7 Table 4.1](#). Refer to Mammoth™ Data Sheets for fire performance results.
*A Group Number of 1S is suitable for use, in air plenums or as HVAC duct insulation, to NZBC C/AS2-AS7, Table 4.1.
Consult with the project Fire Consultant and/or the Services Engineer if necessary.*
- 2. PRODUCTS**
- Materials**
- 2.1 **MAMMOTH NOVAHUSH ACOUSTIC BLANKET**
Mammoth™ NOVAhush Acoustic Blanket, 100% white non woven lofted polyester fibres thermally bonded to produce acoustic blankets. Refer to SELECTIONS for STC and Rw.
Note: When insulation abutting or covering recessed luminaries intended to be in contact with IC, CA, 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame Test to [AS/NZS 60695.11.5](#). Mammoth™ NOVAhush Acoustic blanket meets this requirement.
Mammoth™ NOVAhush Acoustic Blanket used in a wide range of acoustic applications in housing and commercial buildings.
- 2.2 **MAMMOTH NOVAHUSH ACOUSTIC SECTIONS**
Mammoth™ NOVAhush Acoustic Section, 100% woven, thermally bonded polyester fibre material. Supplied as sections. Refer to SELECTIONS for STC and Rw.
Note: When insulation abutting or covering recessed luminaries intended to be in contact with IC, CA, 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame Test to [AS/NZS 60695.11.5](#). Mammoth™ NOVAhush Acoustic sections meet this requirement.
Mammoth™ NOVAhush Acoustic sections used in a wide range of acoustic applications in housing and commercial buildings.
- 2.3 **MAMMOTH NOVAHUSH BAFFLE STACK**
Mammoth™NOVAhush Baffle Stack, 100% white lofted thermally bonded polyester fibre material, supplied as a roll. Refer to SELECTIONS for type and systems STC.
Mammoth NOVAhush Baffle Stack is normally used in ceiling cavities over partition walls to reduce noise transmission over the wall via the ceiling cavity.

- 2.4 **MAMMOTH NOVAHUSH PANEL ABSORBER**
Mammoth™ NOVAhush Panel Absorber, 100% white/black/grey (or white with black face) lofted thermally bonded polyester fibre material, supplied as a sheet. Refer to SELECTIONS for type and NRC.
Mammoth™ Novahush Panel Absorber is a semi rigid panel in black, grey or white polyester available as a plain product or faced with a thermally bonded dense polyester black or white facing for the reduction of reverberated sound within interior spaces. Generally used as surface mounted treatment on walls and ceilings due to excellent absorption properties.
Mammoth™ NOVAhush Panel Absorber is designed for acoustic application and not recommended for visual applications as the surface may show creases, wrinkles or slight colour variations due to the manufacturing process.

Components

- 2.5 **FASTENERS**
Insulation anchors complete with retained washer. 25mm general purpose polyester webbing, 1500kg breaking strain.
- 2.6 **TAPES**
Proprietary plastic tape, stapled across framing to retain insulation in unlined wall and ceiling locations.
- 2.7 **ADHESIVES**
Solvent based glue.
- 2.8 **ADHESIVE TAPE**
Pressure sensitive adhesive tape.
Note: Ensure concrete is dust free before applying tape.

3. EXECUTION

Conditions

- 3.1 **DELIVERY AND STORAGE**
Keep Mammoth™ polyester Insulation dry in transit. Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Reject all damaged materials. Avoid distortion, stretching, puncturing and damage to edges of sheet materials. Do not use damaged or wet insulation material.
- 3.2 **HANDLING**
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.
- 3.3 **INSPECTION**
Before starting installation of acoustic segments, check that the location and framing are free from moisture, that the cavities are not interconnected and that any required mesh, films or papers are in place.

Application

AS/NZS 60695.2.2, NZ only - Amendment A, introduces new classification of recessed luminaires (downlights). The new classification determines what types of recessed luminaires can be used in residential installations and whether they require a clearance to insulation. The luminaires must have their respective class permanently marked on the fitting. Mammoth™ polyester insulation meets the performance standards for insulation, including the needle flame test AS/NZS 60695.11.5.

- 3.4 **CHECK FOILS**
Ensure foils are dry, clean, undamaged and free of debris before being covered.
- 3.5 **CHECK UNDERLAYS**
Ensure these are dry, clean, undamaged and free of debris before being covered.

- 3.6 CHECK VAPOUR BARRIERS
Ensure these form one homogeneous sheet vapour barrier and remain as such throughout the ensuing construction process.
- 3.7 INSTALLATION GENERAL
Lay, install, fit and fix to manufacturer's requirements. Do not cover vents. Allow a clearance around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.
Flue clearances to manufacturers requirements or NZS 4246, state if known.
CAUTION: Electrical cables and equipment partially or completely surrounded with bulk insulation may overheat and fail. This applies to wiring installed prior to 1989.
- 3.8 RECESSED LIGHT FITTINGS - CLEARANCE
Non-residential applications;
The clearance between insulation and recessed downlights
- 100mm gap to [AS/NZS 3000](#), figure 4.9.
- Provide larger clearances where required by the light manufacturer/supplier.

Residential applications;
- Ensure new recessed downlights are one of the new classes classified in [AS/NZS 60598.2.2](#); CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to [AS/NZS 60598.2.2](#); insulation can abut the sides
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight
- Classification type NON IC to [AS/NZS 60598.2.2](#); insulation cannot abut or cover the downlight. This class of downlights is banned from residential applications.
- Provide clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation as per [AS/NZS 3000](#), figure 4.9.
Insulation abutting or covering recessed downlights must pass the needle flame test to AS/NZS 60695.11.5.
NZBC C/AS3 - C/AS7 dictates that non-residential installations must have 100mm clearance.
- 3.9 FIT MAMMOTH NOVAHUSH ACOUSTIC BLANKET - WALL CAVITY
After the wall lining is fixed to one side of the wall/partition, staple **Mammoth™ NOVAhush Acoustic Blanket** to the underside of the top plate, dwang (nog) and friction fit the insulation between studs to completely the whole of the cavities. Leave no gaps. Slightly oversize to retain friction fit. Ensure insulation is fitted at its nominal thickness. Do not fold or tuck the insulation. Keep clean and undamaged until closed in. Close in as soon as possible after fixing.
Use Mammoth™ NOVAhush Acoustic Blanket in walls to create 'quiet zones' particularly in areas adjoining bathrooms, kids bedrooms, kitchens and family rooms.
- 3.10 FIT MAMMOTH NOVAHUSH ACOUSTIC SECTIONS - WALL CAVITY
After the wall lining is fixed to one side of the partition, friction fit **Mammoth™ NOVAhush Acoustic Sections** in the wall cavity to completely fill the wall. Slightly oversize to retain friction fit. Ensure insulation is fitted at its nominal thickness. Do not fold or tuck the insulation. Keep clean and undamaged until closed in.
- 3.11 FIT MAMMOTH NOVAHUSH ACOUSTIC BLANKET - MIDFLOORS
Friction fit **Mammoth™ NOVAhush Acoustic Blanket** between the joists to completely fill the space between each. Leave no gaps. Slightly oversize to retain friction fit to each other, to the framing, smaller spaces and around services. Maintain full thickness over the whole of the installation and fix with plastic tape as necessary.
Modify to suit the project.
- 3.12 FIT MAMMOTH NOVAHUSH ACOUSTIC BLANKET - CEILING OVERLAY
Lay **Mammoth™ NOVAhush Acoustic Blanket** over ceiling grid firmly butting edges and joins to ensure no gaps. Slightly oversize to retain friction fit to each other, to the framing, smaller spaces and around services and maintain full thickness of acoustic insulation over whole installation.
Modify to suit the project ceiling construction.

3.13 **INSTALL MAMMOTH NOVAHUSH BAFFLE STACK**
Install **Mammoth™ NOVAhush Baffle Stack** with required compression. Refer to SELECTIONS for STC rating. Adequate ventilation is required around electrical fittings due to heat given off.

3.14 **FIT MAMMOTH NOVAHUSH PANEL ABSORBER**
Attach **Mammoth™ NOVAhush Panel Absorber** panels to substrate using mechanical fixings or adhesives. Butt edges firmly to the adjoining panel.
Mechanical fixings include insulation anchors. Adhesives are available for some applications and are to be used in accordance with the manufacturer's instructions.

Completion

3.15 **CLEAN UP**
Clean up as the work proceeds. Ensure no spare off cuts or any other materials remain behind claddings or linings.

3.16 **LEAVE**
Leave work to the standard required by following procedures.

3.17 **REMOVE**
Remove debris, unused materials and elements from the site.

4. SELECTIONS

For further details on selections go to www.mammoth.co.nz
Substitutions are not permitted to the following, unless stated otherwise.
If substitutions are permitted modify the statement above, ensure the NO SUBSTITUTIONS clause from GENERAL is treated the same.
Select the options to suit the project and delete options not specified.

Materials

4.1 MAMMOTH NOVAHUSH ACOUSTIC BLANKET

Location: ~
Brand: **Mammoth™ NOVAhush Acoustic Blanket**
Product: **Mammoth™ ~**
Thickness: ~mm
STC: ~

Options:

Product	Thickness (nominal)	Dimensions:
NOVAhush Acoustic Blanket 580	60mm	600mm x 25000mm
NOVAhush Acoustic Blanket 750	60mm	600mm x 11110mm
NOVAhush Acoustic Blanket 900	90mm	600mm x 11110mm
NOVAhush Acoustic Blanket 1000	90mm	600mm x 11110mm

Select accordingly to suit performance requirement.

Typically used for steel framing/ceiling overlay to reduce sound transference.

Product	Stud size	Linings both sides	STC (Rw)
Mammoth™ NOVAhush	92mm	13mm Noise Liner plasterboard	48 (Rw 47)

Typically used for 90mm timber stud and midfloor applications to reduce sound transference. Refer to Mammoth™ for STC rating.

Product	Stud size
Mammoth™ NOVAhush	90mm timber

Higher rates can be achieved with different choices of studs and linings, refer to table below for available options.

Product	Stud	Lining	STC
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 13mm Gib Standard	50
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 13mm Gib Noiseline	52
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	2 x 13mm Standard Gib	56
Mammoth™ NOVAhush	92mm Gib-Rondo Quiet Stud	1 x 10mm & 1 x 13mm Gib Noiseline	59

4.2 MAMMOTH NOVAHUSH ACOUSTIC SECTIONS

Location: ~
 Brand/product: **Mammoth™ NOVAhush Acoustic Sections** (friction fit airlay)
 Product: **Mammoth™ 1000**
 Thickness: 90mm
 STC: ~

4.3 MAMMOTH NOVAHUSH BAFFLE STACK

Location: ~
 Brand/product: **Mammoth™ NOVAhush Baffle Stack**
 Thickness: 120mm per panel
 Compression: 30%
 STC: ~

*Mammoth™ Novahush Baffle Stack: 600mm wide blankets, 11.1m long.
 Standard compression rate 30%. Please contact Mammoth for STC ratings.*

4.4 MAMMOTH NOVAHUSH PANEL ABSORBER

Location: ~
 Brand: **Mammoth™ NOVAhush Panel Absorber**
 Product: ~
 Thickness: ~mm
 STC: ~

<i>Panel Absorber</i>	<i>R value</i>	<i>NRC</i>
<i>35-25mm</i>	<i>0.70</i>	<i>0.70</i>
<i>35-50mm</i>	<i>1.40</i>	<i>0.90</i>
<i>35-75mm</i>	<i>1.97</i>	<i>0.95</i>
<i>48-75mm</i>	<i>2.2</i>	<i>1.0</i>
<i>20-100mm</i>	<i>2.27</i>	<i>0.95</i>
<i>40-100mm</i>	<i>2.27</i>	<i>1.05</i>

Mammoth™ Novahush Panel Absorber is a semi rigid board in black or white polyester available as a plain product or faced with a thermally bonded dense polyester black facing for the reduction of reverberated sound within structures. Generally used as surface mounted treatment on walls and ceilings due to excellent absorption properties.

5311MN MAMMOTH NOVAHUSH ACOUSTIC CEILING TILES

1. GENERAL

If you have pre-customised this work section using the "questions and answers" provided as part of the downloading process, it may be necessary to amend some clauses to suit the final project-specific version.

The section must still be checked and customised to suit the project being specified, by removing any other irrelevant details and adding project-specific details and selections.

This section relates to the supply and installation of **Mammoth™ NOVAhush Acoustic Ceiling Tiles** for a suspended ceiling grid system.

It includes;

- Polyester ceiling tiles
- Polyester acoustic bafflestack

Modify / expand this clause to suit requirements of this specification section.

This section refers to a ceiling comprising of individual tiles supported on a suspended grid system. NOTE: The grid suspension system is manufactured by others and is not supplied by InsulPro.

1.1 RELATED WORK

Refer to 5311 SUSPENDED TILE CEILINGS for suspension system and grid.

Include cross references only to other work sections where they include directly related work.

Amend the suspended ceiling section to suit the suspension system and grid selected.

Refer to 4721N MAMMOTH ACOUSTIC INSULATION for acoustic insulation.

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

NRC	Noise reduction coefficient
CAC	Ceiling attenuation class
AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

[NZBC C/AS1-AS7](#) Protection from Fire

[NZS 1170.5](#) Structural design actions - Earthquake actions - New Zealand

[AS 2946](#) Suspended ceilings, recessed luminaires and air diffusers - Interface requirements for physical compatibility

[ISO 9705](#) Fire Tests: Full scale room test for surface products

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents.

The following are related documents and if referred to in the work section need to be added to the list of DOCUMENTS.

[AS/NZS 1170.1](#) Structural design actions - Permanent, imposed and other actions
[AS 1397](#) Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium

[AS/NZS 2785](#) Suspended ceilings - Design and installation

[NZS 4219](#) Seismic performance of engineering systems in buildings

[ASTM C423](#) Test method for sound absorption and sound absorption coefficients by the reverberation room method

[ASTM C635](#) Standard specification for the manufacture, performance and testing of metal suspension systems for acoustical tile and lay-in panel ceilings

[ASTM C636](#) Standard practice for installation of metal ceiling suspension systems for acoustical tile and lay-in panels

[ASTM E1414](#) Standard test method for airborne sound attenuation between rooms sharing a common ceiling plenum (two room method)

[ASTM E1477](#) Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

[BRANZ BU 369](#) Fitting tolerances

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

- Mammoth NOVAhush Acoustic Ceiling Tile Data Sheet
- Mammoth NOVAhush Bafflestack Data Sheet
- BRANZ report DC2343-1 'Water Vapor Sorption of Ceiling Tiles Under Controlled Conditions'
- BRANZ report FAR 4048 'Assessment Report on InsulPro Ceiling Tiles'
- BRANZ report FI 5373- TT 'AS ISO 9705 and ISO 9705 Fire Test and NCC Specification C1.10 and NZBC Verification Method C/VM2
- Appendix A Performance of InsulPro NOVAhush Acoustic Ceiling Tile.
- BRANZ report FAR 4147 'Assessment of a List of NOVAhush and Underfloor Blanket Polyester Insulation Product

Marshall Day Acoustics: CAC POLYESTER CEILING TILE - Acoustic Opinion on CAC and Dn,c,w of Ceiling Tiles and Baffles, 27 November 2013 (Refer to Mammoth for this report).

Living Building Challenge: Declare Program - Red List Free Declaration Status for Mammoth NOVAhush insulation.

Manufacturer/supplier contact details

Company: **InsulPro Manufacturing Limited**

Web: www.insulpro.co.nz

Email: info@insulpro.co.nz

Telephone: 0800 100 007

It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Mammoth is manufactured by InsulPro Manufacturing Ltd; a carboNZero certified organisation.

Warranties

1.5 SUPPLY WARRANTY

Provide warranty for:

50 years: For **Mammoth NOVAhush Acoustic Ceiling Tiles**

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.
- Commence the warranty from the date of practical completion of the contract works.
Modify or expand the clause to suit project requirements, options include:
 - *Change the standard form to be used*
 - *Commence the warranty from the date of completion of this part of the contract work*
 - *Commence the warranty from the date of purchase*

Requirements

1.6 QUALIFICATIONS

Installers to be experienced, competent trades people familiar with the materials and techniques specified.

This clause includes generic text which should be expanded only if there are specific qualification requirements.

1.7 NO SUBSTITUTIONS

This specification forms an integral part of the acoustic design. Substitutions are not permitted to any of the specified system associated components and /or products.

1.8 CLEANING INSTRUCTIONS

Supply information on the materials and method of cleaning the ceiling tile over its expected life.

- 1.9 SPARE TILES
Provide spare matching ceiling elements in the quantities specified below. Deliver into a dry store at the site or elsewhere as directed and at agreed times. Refer to SELECTIONS for quantity.
Ask for packs of tiles. 595mm x 1195mm tiles come in packs of 10 tiles.

Performance

*Use these clauses if specifying by performance.
NOTE: Even when specifying by brand it may still be necessary to include some reference to performance.*

- 1.10 ACOUSTIC REQUIREMENTS
Refer to SELECTIONS for acoustic performance requirements.

- 1.11 FIRE GROUP NUMBERS
The Group Number Classification to NZBC C/AS1-AS6, Table 4.1, has been determined in accordance with NZBC C/VM2 Appendix A, following testing ISO 9705 (test report referenced Manufacturer's documents).

Product:	Group number:
Mammoth™ NOVAhush Acoustic Ceiling Tiles	1S
Mammoth™ NOVAhush Bafflestack	1S

- 1.12 ENVIRONMENTAL REQUIREMENTS
Design the ceiling system for use over its expected life without deterioration in the specified temperature and humidity range. Refer to SELECTIONS.
If this clause is not used and the SITE CONDITIONS clause cannot be complied with, then allowance needs to be made for a tile that will not sag over the construction period.

InsulPro recommend that where there is a risk of condensation a suitable watertight breathable membrane should be fitted on top of ceiling tiles to reduce the risk of water staining. Refer to InsulPro for details.

- 1.13 REFLECTANCE
Refer to SELECTIONS for reflectance and colour.

2. PRODUCTS

Materials

- 2.1 CEILING TILES
Mammoth NOVAhush Acoustic Ceiling Tiles, high density 100% polyester. Finished white polyester with a grey speckled or other surface print. Refer to SELECTIONS.
Supplied by InsulPro.
- 2.2 POLYESTER ACOUSTIC CEILING BAFFLESTACK
Mammoth NOVAhush Bafflestack made from 100% polyester fibres thermally bonded to form a flexible blanket/roll for controlling ceiling path sound transmission. Refer to SELECTIONS for options.
- 2.3 GRID SUSPENSION SYSTEM
Refer to 5311 SUSPENDED TILE CEILINGS for suspension system and grid.
Amend the suspended ceiling section to suit the suspension system and grid selected.

3. EXECUTION

Conditions

- 3.1 CO-ORDINATE SERVICES
Co-ordinate and co-operate with electrical and mechanical work to avoid conflict with installation of tiles and the unnecessary removal of tiles.

3.2 SITE CONDITIONS
Do not begin installation until the building is closed in, fully glazed, the roof watertight, the atmospheric conditions within the manufacturer's guidelines, and mechanical and electrical duct work above the ceiling completed.
If fast track construction is used, this may not be possible and tiles must be selected accordingly.

3.3 RESPONSIBILITY
Ensure that conditions are suitable for the ceiling installation. Arrange for the programming of the work to suit required practice.

3.4 RECESSED LIGHT FITTINGS - CLEARANCE
Non-residential applications;
The clearance between insulation and recessed downlights
- 100mm gap to [AS/NZS 3000](#), figure 4.9.
- Provide larger clearance where required by the light manufacturer.

Residential applications;
- Ensure new recessed downlights are one of the new classes classified in [AS/NZS 60598.2.2](#); CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to [AS/NZS 60598.2.2](#); insulation can abut the sides
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight
- Classification type NON IC to [AS/NZS 60598.2.2](#); insulation cannot abut or cover the downlight. This class of downlights is banned from residential applications.
- Provide larger clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the downlight to insulation to [AS/NZS 3000](#), figure 4.9.
Insulation abutting or covering recessed luminaires (downlights) must pass the needle flame test to AS/NZS 60695.11.5.
NZBC C/AS3 - C/AS7 dictate that non-residential installations must have 100mm clearance.

Installation

3.5 SUSPENSION SYSTEM AND GRID
Refer to 5311 SUSPENDED TILE CEILINGS for suspension system and grid.
Delete this clause if the grid exists and this is a retrofit situation.
Amend the suspended ceiling section to suit the suspension system and grid selected.

3.6 INSTALL TILES
Install Mammoth NOVAhush Acoustic Ceiling Tiles in suspended ceiling system to Mammoth™ installation instructions using clips to hold tiles in place if necessary.

3.7 INSTALL CEILING ACOUSTIC BAFFLESTACK
Install Mammoth NOVAhush Acoustic Bafflestack with enough compression to ensure stability between slab, roof, or floor above and to meet the required CAC rating. Refer to SELECTIONS.

Note: Consult with the air conditioning installer to ensure no loss of effective air movement to the active return air system.

3.8 ACCESSIBILITY
Provide access to the ceiling system and the in-ceiling and above-ceiling services so that maintenance and removal of any part can be carried out without damage to the ceiling system or panels.
As full access in all areas is clearly impractical, any special requirements for clear access will need to be defined; either by description here, or on the drawings.

3.9 PENETRATIONS
Accommodate recessed light fittings, air conditioning outlets and other electrical and/or mechanical services that are fixed to or pass through the ceiling tiles. Ensure independent support is provided for these as necessary. Such fittings are not to be supported by the acoustical ceiling panels.

3.10 RETURN AIR PLENUM
Tiles to prevent release of fibres into the ceiling space, air conditioning or ventilation system. Clip tile down to the grid to stop lifting if required.
While this clause is written specifically for projects where the ceiling space is being used as a plenum, it may also be modified to suit particular projects which require some degree of assurance against the release of fibres, and/or the use of panel clips.

3.11 PROTECT EXISTING WORK
Protect adjacent existing work from damage during the installation.

Completion

3.12 REPLACE
Replace damaged tile or elements. Replace any tiles that have been marked and which are no able to be cleaned off.

3.13 CLEAN DOWN
Clean down completed surfaces to remove dirt and marks including any hand marks, to leave completely smooth and clean.

3.14 REMOVE
Remove debris, unused materials and elements from the site.

3.15 LEAVE
Leave work to the standard required by following procedures.

4. **SELECTIONS**
For further details on selections go to www.mammoth.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

Requirements

4.1 SAMPLE SECTION
Location: ~

Performance

4.2 ACOUSTIC REQUIREMENTS
NRC: 0.8
CAC: 18 dB - no Bafflestack
26 dB with 300mm wide Bafflestack
32 dB with 600mm wide Bafflestack

4.3 ENVIRONMENTAL REQUIREMENTS
Range: 0 - 40°C
Relative humidity: 95 % maximum
If this clause is not used and the SITE CONDITIONS clause cannot be complied with, then allowance needs to be made for a tile that will not sag over the construction period.

4.4 REFLECTANCE
Reflectance: 85 %
For (colour): White

Materials

4.5 CEILING TILES
Brand: **Mammoth NOVAhush Acoustic Ceiling Tiles**
Dimensions: 1195 mm x 595mm
Thickness: 18 mm
Edge profile: Square edged
Acoustical rating: NRC 0.8
Group Number: 1S

- 4.6 ACOUSTIC CEILING BAFFLESTACK
Location: Ceiling
Brand/product: **Mammoth NOVAhush Baffle Stack**
Thickness: 100mm per layer
Compression: 30%
Acoustical rating: STC~
Group number: 1S
*Mammoth NOVAhush Baffle Stack: 600mm wide blankets, 11.1m long.
Standard compression rate 30%. Please contact Mammoth for STC ratings.*

- 4.7 GRID SUSPENSION SYSTEM AND PERIMETER TRIM
Refer to 5311 SUSPENDED TILE CEILINGS for suspension system and grid.
Amend the suspended ceiling section to suit the suspension system and grid selected. Not supplied by InsulPro.

Spares

- 4.8 SPARES
Panels: ~
Ask for packs of tiles for routine minor repairs.